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ABSTRACT

This research was conducted within a one-year compensatory or basic studies program for college freshmen at Tarrant County Junior College, South Campus, Fort Worth, Texas. Students enrolled in the same reading course served as tutors and tutees in the classroom. The peer tutors were second-semester students and the tutees were first-semester students. Weekly in-service training meetings were conducted for the tutors who were paid to attend in addition to being paid for two hours per week of tutoring. All groups made gains in reading as well as self-concept. The greatest gains were made by the Spring tutors who had been tutees and by their tutees who had the advantage of the "experienced" tutors. Over a period of two semesters the tutees-who-became-tutors gained 34 percentiles on the Sequential Test of Educational Progress-Reading and 15 points on the Tennessee Self-Concept Scale. Students made better reading and self-concept gains in the role of teacher than in the role of student. Students receiving instruction from experienced tutors made slightly better gains than students paired with inexperienced tutors. (Author)

Final Report

Project No. 1F065
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A STUDY TO DETERMINE THE EFFECT OF PEER TUTORING ON THE READING EFFICIENCY AND SELF CONCEPT OF DISADVANTAGED COMMUNITY COLLEGE FRESHMEN

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U.S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
National Center for Educational Research and Development

DEDICATION

To the memory of my teacher, Ruth Strang,
who taught me the real meaning of the verse:

For every evil under the sun
There is a remedy, or there is none.
If there is one, go and find it.
If there is none, never mind it.

S.R.

ABSTRACT

This research was conducted within a one-year compensatory or basic studies program for college freshmen at Tarrant County Junior College, South Campus, Fort Worth, Texas. Students enrolled in the same reading course served as tutors and tutees in the classroom. The peer tutors were second-semester students and the tutees were first-semester students. Weekly in-service training meetings were conducted for the tutors who were paid to attend in addition to being paid for two hours per week of tutoring. All groups made gains in reading as well as self-concept. The greatest gains were made by the Spring tutors who had been tutees and by their tutees who had the advantage of the "experienced" tutors. Over a period of two semesters the tutees-who-became-tutors gained 34 percentiles on the SEQUENTIAL TEST OF EDUCATIONAL PROGRESS-READING and 15 points on the TENNESSEE SELF-CONCEPT SCALE. Students made better reading and self-concept gains in the role of teacher than in the role of student. Students receiving instruction from experienced tutors made slightly better gains than students paired with inexperienced tutors.

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INTRODUCTION

Across the Nation, community colleges are increasingly serving many young people who traditionally have not sought post-high school educations. These students tend to be disadvantaged in one or more ways.

Tarrant County Junior College, as well as many other urban community colleges, seeks to bridge this "gap of disadvantagement" and keep the "open door" from becoming a "revolving door" through its Basic Studies program, which has these characteristics:

1. it is a one-year college-level program in general education providing individualized attention by instructors and stimulating close personal association among students.

2. the instructional program is student-centered and employs techniques of flexible scheduling, team-teaching, and an integrated curriculum; and

3. students participating in the program have achieved little academic success in the past, have low predictor scores (lower quartile) on the ACT, and are enrolled in full-time study.

Evaluations of the Basic Studies program over the last four years have shown that ninety-five percent of these students have moderate to severe reading deficiencies. Therefore, the reading program is designed to develop reading skills as well as the desire to read.

The Basic Studies Student

Many students involved in this program are disadvantaged in one or more areas (i.e., minority people, culturally different, educationally disadvantaged, or economically disadvantaged.)

All students involved in the Basic Studies program are full-time college freshmen, have high school diplomas or the equivalent, have scored thirteen or below on the ACT standard composite and/or in the lower quartile on the ACT predictor, (see Table 1), have a history of academic failure or limited success, are between seventeen and twenty-one years of age, and are inefficient readers.

These students are counseled into the program, not forced. Regardless of their past, their present dilemmas, or their aspirations, these students are taught as if this will be the last year of formal education they will ever experience. Each year finds more of these students pursuing additional education, however.

Table 1. Mean ACT standard composite scores for experimental and control groups*

Group	Mean
Tutors (E1)	9.8
Tutees ($E2_a$) ($E2_b$)	11.1
Tutees (E3)	10.6
Control	10.8

* The highest possible standard composite score is 36.

** Predictor scores were not accessible to the investigator.

Prior to this research, experience in the Basic Studies reading course emphasized a major dilemma in working with the underachieving college freshman -- he needs individualized instruction, but his limited motivation and skills make self-instruction frustrating, inefficient, or ineffective. When he makes a mistake or encounters something he doesn't understand, he stops working.

Few of these students will admit that their basic reading skills can be improved. They are willing to take "speed reading," but insist that they need no other reading skill improvement.

To make an assignment and send this type student on his way puts him into the same situation that homework and studyhall put him previously. The college study carrel just makes the physical or psychological need for sleep easier to attain. The total Basic Studies program has used small or large group work to occupy much class time in order to assure that the student remains involved in the assignment.

These students were frequently the ignored or isolated class members in the past. Both academic and social progress often depends on their "belonging," their group acceptance and participation. So, for this reason, too, large or small group work has occupied much class time.

Of course, the large group approach severely limits time for attention to individual needs or problems, especially of the poorer or abler students (just as in the traditional classroom). The small group approach taxes the teacher's ability to be in more than one place at a time to assist each small group. Facets of the dilemma are countless. Each new group of students presents new problems and needs.

The individualization of a reading course is rather easy with the myriad of self-instructional, multi-level materials on the market. However, those published materials are often found in every grade of public schools and the college freshman literally demands something different. Also, the commercial materials are replete with short

learning activities followed by a "progress check." To the disadvantaged student the progress check is a test and he hates tests. When he must test himself every fifteen or twenty minutes he simply refuses to function, copies answers from the key or hedges in some way.

With all this in mind the reading course for these students had been altered many times to fit their needs, desires, and learning styles. The environment or methods which evoke negativism have been removed from an individual's personal prescription to whatever extent possible.

In summary, it was concluded over a period of four years of actual experience with the Basic Studies students that the traditional classroom did not work and that the traditional lab for reading did not work either. The students did indeed need individual attention, but not individual assignments or machines to struggle with alone.

It seemed that the availability of tutors in the classroom would be ideal since the course could be individualized while providing everyone with personal attention. Thus, the project with peer tutors was initiated.

METHODS

Past evaluations, including rather extensive testing, have also consistently shown that these disadvantaged students possess comparatively low self-concepts. Consequently, this research project sought to attack two basic areas in the education of the disadvantaged student -- reading improvement and self-concept improvement.

The purpose of this project was to determine the extent to which a peer tutorial program could contribute to improving reading efficiency and raising the self-concept of disadvantaged community college freshmen. This project was structured in order (1) to determine the extent to which peer tutoring in reading contributes to improved reading efficiency when it supplements the regular instructional program in reading, and (2) to determine the extent to which the tutorial program results in an improved self-concept attributal to a tutorial program. Both reading and self-concept growth was measured with students serving as tutors (Group E1), students being tutored only (Group E3), and students being tutored (Group $E2_a$) and subsequently becoming a tutor (Group $E2_b$).

In addition to the three groups identified above, a control group (Group C1) served as the criterion group for testing. Group C1 was comprised of Basic Studies students who were enrolled in a program identical to the E groups, except for the peer-tutorial reading aspect. Approximately eighty students were involved in the project during the 1971-72 school year. (Figure 1)

FIGURE 1
THE EXPERIMENTAL AND CONTROL GROUPS

E1 Tutors	$E2_a$ Tutees	$E2_b$ Tutors	E3 Tutees Only	C1 Control
Fall, '71 N=17	Fall, '71 N=23	Spring, '72 N=20	Spring, '72 N=21	Fall, '71 N=21

The Research Design

Both the experimental and control groups were drawn from the same population. Basic Studies requires full-time enrollment. Students were randomly assigned to a particular section. The only treatment differences were that the Experimental Groups were involved in the tutorial reading activity.

Because of the homogeneous characteristics of Basic Studies students, it was assumed that no difference would exist between the Experimental and Control Groups.

All of the students were enrolled on the same vertical team (Team III) within the Basic Studies program. (There were two other vertical teams.) A vertical team is made up of six teachers to handle (1) counseling and personality foundations, (2) reading, (3) social science, (4) natural science, (5) communications, and (6) humanities. Therefore, every student in the study was instructed by the same five content teachers and by the same reading teacher throughout the year. Moreover, they attended every class with the same section of twenty to twenty-five students. (There were two sections in the reading lab at all times, totaling forty to fifty students.) Their total academic experiences were more alike than is ordinarily possible with eighty college freshmen. All eighty students were members of one academic team and had almost identical opportunities and experiences in the college classroom.

Standardized and Informal Tests

The following tests were submitted to the clearance committee in the National Center for Educational Research and Development and approved for use:

1. The Diagnostic Reading Test - Survey Section, Forms H and A

2. The Sequential Test of Educational Progress-Reading, Forms 2A and 2B

3. Tennessee Self Concept Scale

The Tennessee Self Concept Scale was not acceptable to the clearance committee until six items, which were declared self-incriminating, were struck. The deleted items are as follows:

1. I am a bad person
2. I am a moral failure
3. I am losing my mind
4. I despise myself
5. I shouldn't tell so many lies
6. I sometimes use unfair means to get ahead

These items were literally struck from the test booklets before the students took the tests. The "total positive" scores on the pre and post tests were used in the final analysis. The five subscores were also used. "Self-criticism" and "conflict" scores were not used in the final analysis.

The information from disadvantaged students' standardized tests was supplemented by informal, teacher-made inventories. The informal inventories used for this project were submitted to the clearance committee and approved although the data was not used statistically. Students were asked to complete the following (see Appendix A):

1. Student Personal Data Sheet
2. Reading Autobiography
3. Attitude-Interest Inventory
   (a sentence completion activity)
4. Physical Inventory

The information about a student's schedule, interests, attitudes, perceived problems, assessment of strengths and weaknesses, and goals was used by the investigator in prescribing an appropriate reading program for the student. Information of a general nature, not confidential, was available to the tutor.

Many students dislike standardized tests, but the TCJC disadvantaged college freshman has feelings stronger than dislike. Under the most favorable conditions some students became angry, refused to read the questions before marking an answer, completed the test while anticipating "failure," or froze on both pre and post forms of the standardized test. Some expressed deep resentment at being required to take so many tests before being admitted to college and then again upon entering college. They did not like being used as guinea pigs through tests. The students who were involved in this research were prime subjects for other studies. In addition to the tests required by the investigator, two doctoral students, the Southern Association for Schools and Colleges self-study committee, and the team counselor were asking them to complete tests and questionnaires. The project's test results should be interpreted with this in mind.

The Tutors and Tutees

There were two groups of tutors for the project, the seventeen students who had had one semester of reading instruction in the Spring, 1971, and the twenty-four students who during Fall, 1971, received the tutoring and training to become tutors for the Spring, 1972.

The first tutors were telephoned by the Basic Studies counselors in the summer. These students had completed one semester of reading in the Basic Studies program and were eligible to return for completion of the one-year program. Each student who was called was asked whether he would like to serve as a paid tutor in the reading class. The first twenty students (reached quite randomly be telephone) who agreed to re-enter school and serve as tutors were asked to visit the campus and pre-register. By the time school started two students who wanted to be tutors had decided not to make the schedule changes which were necessary. One student had agreed to be a tutor but later decided not to return to college at all. At the time the three tutors resigned their tutoring jobs it was not possible to replace them. Therefore, only seventeen students originally served as tutors.

Most of the tutors indicated to the counselors that being given the responsibility and opportunity to tutor was the positive determining factor in their returning to college.

These tutors were not selected on the basis of their level of achievement in reading, but on the fact that they had had one semester of Basic Studies reading and were returning to school to complete the program. The one semester of reading instruction which they had completed only assured the investigator that the students felt comfortable in the reading lab environment and were somewhat familiar with the location of materials and the operation of equipment.

The second-semester tutors were selected simply on the basis of their having been tutored the previous semester.

The original twenty tutees were selected through fifteen-minute interviews with the investigator during which the research project was explained. They were asked if they would like to have a tutor for the first semester of the Basic Studies program in the reading course. It was difficult to get twenty volunteers to agree to being tutored. The reason for this was expressed quite freely. These students were academically unsure of themselves. They suspected that once again, an educational institution was subtly implying that they were incompetent students who needed special help. It is certain that these twenty students would not have volunteered unless they had understood that after one semester they would become tutors.

In private interviews their scores were explained and an individual semester assignment was made for each student, based on his greatest needs. Tutors and tutees were paired within their sections. The tutors were allowed to study the diagnosis of their tutees so that they would be able to review in advance the materials which they would be teaching.

Only two guidelines were used in assigning tutor to tutee:

1. the tutor had to have better total scores on the DRT and STEP than his tutee.

2. both had to be enrolled in the same section.

In only one case did it become necessary to pair two students where the tutee consistently scored higher than the tutor. The tutor was the poorest reader in five sections of classes, even after one semester of the reading course.

The two students were told that their strengths were in essentially the same areas and that, therefore, they would need to become "partners" in studying and mastering the weaker skill areas. Since the tutor attended the in-service meetings and made preparations to teach, he did have something to offer most of the time. In this case, both the opportunity to praise the tutor for his performance in teaching reading and the opportunity to praise both for their interpersonal relationship existed.

The stigma of being tutored was so great that during the first week of school the students verbalized their negative feelings about any newspaper coverage and also requested that the title "tutor trainee" replace "tutee."

With the title "tutor trainee" the position became one of status. Soon afterward, four students strongly requested a tutor so that they could be trained to tutor for the following semester. To accommodate this turn of events four tutors agreed to work with more than one student or "tutor trainee" at a time without additional pay.

Therefore, the beginning of the Spring semester found the project with twenty-four tutors rather than twenty. This turned out to be an advantage. Three of the tutees who were to become tutors left school or transferred to another division. Only twenty tutees actually began serving as second-semester tutors.

It was easier to get tutees for the first semester experiment since being promised a tutoring job for the following semester was a strong incentive for participation. Getting volunteers at the beginning of the second semester was more difficult. They could not be promised that a tutoring job would result. However, once the students were enlisted to participate in "an important Federal research project" they reported pleasure with the role. They enjoyed their personal orientation to college life and the reading lab which the tutors provided. They were able to feel accepted and important right away. The tutees were frequently questioned on their feelings about being tutored. Their academic progress was noted through their personal folders. At the end of each semester the tutee was asked to write an anonymous report. In only one case out of forty was a tutee disappointed. His tutor's attendance had been poor and the tutee felt neglected and took the situation rather personally. The tutee reported fear that the tutor was staying away because he didn't like him. The tutee did have successful experiences with a substitute tutor, however.

Selection of tutees for students entering college in January was difficult for another reason. Although the January enrollees' records indicated limited success and entrance exam scores were low, their background of experience was broader and their motivation greater than the typical Fall student. More of them had been in the military service, flunked out of a university, held down a full-time job (or searched futilely for one), married, and reached their twentieth birthday. None of the new tutees were just out of high school. Such differences in experiences did effect the one-to-one tutoring relationship.

The Control Group

The control group was composed of twenty-one students who chose not to tutor and not to be tutored. The data on the control group was taken from each student's first semester in the reading improvement course.

The control group was taught exclusively by the investigator using the same reading lab equipment and the same student books. The control group was introduced to a lesson and the teacher then became a resource person and clerk, keeping the individual activities organized and answering questions.

In the final written student evaluations, three control group students mentioned that they had felt neglected, that the tutors and tutees had received more attention. Two said they would have liked being part of the project after all.

The control group was not neglected, but the tutors and tutees did receive more attention -- from one another.

The remainder of the control group had originally indicated a preference for no tutoring because they felt they could do better or for some other reason, preferred to work alone. Their opinions did not change.

Implementation of the Tutoring

It was necessary to devote the first three weeks of reading class to testing (six hours). Individual interviews for test analyses with the students were conducted. The tutors were assigned their tutees and were familiarized with his needs. They also received their personal program of study.

At the beginning of the fourth week the first group of tutors requested permission to get to class for roll check, collect their materials, meet their tutee, and go anywhere outside the classroom to study. Permission was granted, but soon retracted. There were always two sections (about forty students) in the lab each hour. Although the reading lab was noisier than usual with five to ten tutors and a teacher all talking at one time, it was better than the Student Union, the lawn, or a car with the tape deck playing. Most of the students admitted this and voluntarily returned to the reading lab to perform their duties. The library was fairly conducive to the tutoring, but the students also realized how much time they were losing in going from one building to another in a one hour period.

The reading lab furniture did present some problems not present in a traditional teaching situation. It was difficult for two people to work in one carrel. The large round library tables accommodated two pairs of students, but the pairs disturbed each other. The rectangular tables were not much better than the round ones for tutor sessions. The moving about in the lab which was necessary in using a variety of materials and in flexible grouping could have been facilitated better in a carpeted, larger room than was available. However, the environmental problems were approached positively. Practice in concentration, tolerance, and consideration for others was a requisite to survival and fitted into the goals and objectives of the program at the same time.

Sometimes two tutors and two or three tutees formed a small study group. The tutors were at no time placed in competition with one another based on tutee gains. The pairing and grouping remained flexible.

When the tutor and tutor trainee needed work in different areas, it became the responsibility of the tutor to study for the tutoring job and work on his own skill deficiencies outside of class. The tutors were to

devote the majority of their class time to tutoring. However, they did need personal time to use the lab equipment and materials. Tutors were allowed to use the in-service training session time to catch up on their own work, after the necessary group discussions and instructional period for the week's work was completed. They were also allowed to use the lab during their free periods.

The investigator had assembled and organized materials specifically related to various reading skills prior to the beginning of the research project. This was done so that the tutors would be able to select learning activities more efficiently.

Re-Shaping the Instructional Program

However, there was an overwhelming negative reaction to the individualized approach. The students were uncomfortable and insecure. The majority of the students involved in the project, including the more mature tutors, requested a highly structured, "everybody-working-on-the-same-thing" approach.

An even stronger request from both tutors and tutees was for the investigator to give weekly or daily assignments and demand that they be completed on time. The students greatly disliked being given semester objectives and allowed to work at their own rate. It was quite apparent that they were aware of their own lack of self-discipline.

The students also strongly rejected the programmed instructional material where answers were given in the same frame or on the same page. They did not want cheating to be made so easy for them. In materials with answers on the next page or in the back of the book, they worked more diligently and had a feeling of accomplishment when finished.

Therefore, instructional units which included programmed books were revised. The programmed books became supplementary material. Also, any unit with more than two types of media was revised. Students became confused and frustrated when asked to use a combination of audio tape, written material, and film to complete one lesson on their own. Only when the teacher or tutor coordinated and paced such lessons for more than one student at a time were such lessons acceptable to the student. It seemed better for the multi-media approach to come from a series of lessons rather than with every single lesson.

As a result of the frustration caused by the new attempt to individualize, the second half of the first semester was changed. Every student whether he was tutor, tutee, or control group member used the same materials. The tutors simply received the assignment ahead of time and worked through them and developed their own approach for presenting the lesson.

The tutees were assigned very little reading-lab homework. Unusual pressures related to their being in college as well as related to their mere survival existed. The tutees were encouraged to do outside reading

for pleasure, and to apply what they were learning in the reading class to studying their other content courses.

Due to the expressed insecurity of the tutors the investigator provided the second group of tutors an "edge" -- a book which the tutees did not have. Joffe's Opportunity for Skillful Reading was the "tutor's manual." The tutor worked one skill unit at a time in his own book, built a background of knowledge and then instructed with the small single workbooks by Joffe which accompany Opportunity for Skillful Reading. Each of the small books has the title of one unit from the big book but with different learning activities.

By the end of the year, with constant student usage, evaluation, and feedback, the various activities and materials were relegated to the following positions of importance for the underachieving college freshman at TCJC:

Eliminated from use temporarily:

1. SRA materials
2. Tachistoscopic exercises
3. Controlled reader films

Given limited use:

1. Pacer reading
2. McGraw-Hill's Basic Skills Series
3. EDL's Listen and Read, JKL and MP

Frequently used:

1. Mastering College Reading Skills (a book)
2. Opportunity for Skillful Reading (a book) and accompanying skill booklets
3. Tactics in Reading II (study cards)
4. Word Clues (multi-level vocabulary books)
5. Additional, teacher-compiled word lists from content areas
6. Two large spinners of paperback books for recreational reading
7. Group discussions
8. Group work on assignments from other content areas which led to instruction in test-taking, note-taking, and other study skills
9. Class sets of paperback books for scanning exercises and literary analysis
10. Slide-sound presentations and 16mm films

In the second semester the initial input for the day's lesson came from the investigator to the entire group. This was not a lecture. It was an introduction geared to stimulate interest in the ensuing learning activities. At the end of the introduction, the investigator would always say something similar to "Now you tutors know where to go from here" or "Tutors, pick up where I left off. We worked on this in in-service."

Such announcements about the tutors' capabilities reinforced or helped establish positive feelings in the tutors and in the tutees every day.

The vocabulary portion of the program received positive comments all year. The EDL Word Clues books were assigned. All of the work from these books had to be done individually and outside of class. Because students were using different levels of the books, no group discussion was possible. Occasionally the students with the same books would work in groups and discuss their vocabulary. In addition, lists of vocabulary from content areas were given to the students to learn or review.

Because this research was conducted within a total academic program, the peer tutors automatically attended all other classes with their tutees. Some found the situation difficult. If they allowed the relationships to develop into real friendship the tutoring sessions seemed less effective to the students. One pair reported at the end of the semester that they "horsed around too much in the reading lab." Yet going to all classes all week with the same peers and being in a program whose philosophy promoted closeness among students and faculty made it difficult for tutors to remain aloof. That situation was an additional learning experience and another good reason for in-service discussion time.

Role of the Teacher in the Classroom

The investigator for this project was the teacher with all experimental and control groups. She had two major tasks in this role, (1) to conduct the classes, and (2) to conduct the tutor in-service meetings.

In the classroom the teacher served as facilitator, not lecturer. After the lesson was introduced, every effort was made to leave the tutor and tutee alone until they called for help. If the teacher noticed equipment being misused or materials being used inappropriately she naturally intervened tactfully (these students are adults). Most of her time was devoted to the control group subjects.

In a classroom with tutors, the teacher was less rushed but believed that she efficiently handled more problems than she had in previous classes without tutors. The difference lay in the type of problems the teacher was free to deal with. When the students needed help with the operation of a machine or in figuring a grade, tutors answered. The teacher was able to deal with diagnosis, moving the student into more advanced reading skills sooner. She was able to be more academically practical than sometimes possible with such students. Time was spent helping read and study actual content lessons.

In-service Training for Tutors

The teacher planned and conducted the one-hour in-service meetings which were held weekly. The tutors met every Monday morning at 10:00. No meeting was ever cancelled. The tutors knew that they must be present.

The first tutor in-service meeting of each semester set the pace for others. The agenda was as follows:

1. Tutors completed timesheet and payroll information.

2. Tutors discussed their feelings as peer tutors, their perception of the task ahead, the rumors about tutoring which they had heard, and the type student they did or did not wish to tutor.

3. The investigator gave her perception of the tutor's role, responsibilities, and suggested some guidelines.

4. The week's lesson was discussed and optional materials were located in the lab for tutors' reference. The tutor was to have completed a reading skill unit in his books prior to each in-service meeting. In these tutor training sessions the teacher actually taught the lesson to the tutors. Then the content and approach were discussed. The tutors were shown the optional materials which they might find necessary for their tutee and were encouraged to use any different approach with their tutee, keeping the objectives in mind.

5. Specific problems or concerns encountered in previous tutoring sessions were discussed. The tutors were encouraged to make suggestions to each other and to share their successes and failures.

   Such things as the differences in experiential backgrounds and maturity levels were discussed and the tutors exhibited concern but excitement in their efforts to function with confidence and to earn respect for their role.

   Even more frequently, they expressed their frustrations at not being able to get their own work done. For any of these students to be concerned about not getting their own work done was truly an accomplishment. Past performance showed that they had used every excuse for not doing their own work.

At later meetings the tutors spent time working on their own assignments, using the lab equipment and working together on the tutees' lesson for the week.

The teacher participated as little as possible, attempting only to facilitate lively peer conversation and discussion. On one occasion it was impossible for the teacher to get to the tutor meeting and she was unable to send directions to the tutors. When she arrived an hour later the tutors were gone and the following note was written on the chalkboard:

Nov. 8
Mrs. Ross
We had a good class. Everyone worked hard. We do have some problems. Students feel everything has stacked up on them all at once.

Danny

A group of seventeen tutors who only a year before had been considered the high school incorrigibles, the students most likely to succeed at ditch-digging and house-cleaning, the students who would never succeed in college, conducted their own in-service meeting and reported it. They functioned efficiently in the classroom that week, also.

A small professional library including copies of Handbook for the Volunteer Tutor (1969) was provided the tutors, but they seldom had time to delve into the books. The investigator suggested some methods and discussed the educational philosophy of the Basic Studies program in the in-service meetings. The reading lab was also supplied with a variety of other material which was always pointed out to the tutor in case he needed less difficult or additional learning activities for his tutee.

Perhaps the most frequently employed and valuable learning activity in the in-service meetings was the role-playing for the purpose of giving the tutors practice in praising the tutees' efforts. The tutors found it very difficult to praise their peers or compliment them. Their fear was that they would sound insincere.

Once during the first semester the tutees were invited to the in-service meeting. They listened but also offered suggestions of a general nature. Such a meeting was rated "unnecessary" by the students. Much more specific and valuable suggestions were evoked through anonymous written accounts of their experiences while being tutored and their ideas for doing things differently if they should become tutors.

Even with the in-service meetings regularly scheduled and their importance emphasized, tutors sometimes didn't attend or would come in late. The tutors found their own solution: no tutor could teach that week unless he had attended the in-service meeting and completed the preparations. In addition, the tutors who had prepared to tutor were allowed to work with the extra tutees and earn the absentee tutors' salaries.

The tutor in-service meetings are vital to such a program. The feedback from the tutors concerning student attitudes, materials, approach to learning and teaching, and their personal feelings was invaluable. The course objectives were expanded to include spelling for those who wanted it, more phonics for those who requested it, and more emphasis on remembering what was read and following directions. Students also requested more vocabulary work in addition to an already heavy emphasis on vocabulary.

The tutors began asking for more tape players and additional study carrels for their tutees' use. It seemed that after a period of success with the special guidance from a tutor, tutees began working faster and with added confidence. The individualized program was more effective

with the disadvantaged freshman after eight weeks of college provided him with the attention, success, and personal orientation to the reasons for such an approach. These students entered college believing that learning is extremely difficult and they were highly suspicious of any approach which made learning enjoyable or easy or which gave them a different task from some other class member.

Tutors' Stipends

Each tutor was allowed to work three hours per week for $1.60 per hour. A tutor was paid for two class meetings of one hour each and the one-hour in-service meeting. For one semester's work, excluding final exam week, he could earn up to $72.00. Justifications used for paying the tutors were as follows:

1. The tutors were devoting their time to a special activity not normally a requisite part of their study.

2. Because many of the Basic Studies students must work full or part time in order to remain in school, their participation in the project denied them some hours for which they might have been involved in wage-earning activities.

3. The tutor's stipend provided some intrinsic reward as well as an incentive for executing his responsibilities effectively.

4. The nominal stipend -- equivalent to the required semester fees at TCJC -- was reported to be the positive factor in some students' staying in school.

5. The tutors had unique responsibilities in the research program and such services merited payment.

Some of the tutors confessed that their attendance in class and especially in the in-service meetings was due to the money they earned.

It was estimated by the investigator and the students that almost all forty of them would have volunteered to tutor, but only about twenty of them would have followed through or completed the semester in that capacity without the money.

Fifteen of forty tutors said that course credit would have been enough reward for their efforts.

Five tutors indicated that they would have voluntarily worked as a tutor without course credit or money.

The tutors were given a choice of being paid the $72 at the end of the semester, giving them a lump sum for the following college registration period, or the choice of being paid at the rate of $1.60 per hour each month. Every tutor chose to be paid monthly.

RESULTS

Reading

A T test was performed on four reading variables to be sure that distributions were normal and comparable to standard scores based on a normal distribution or original scores. (Table 2)

Since the scores on the DRT and the STEP-READING on their first and subsequent administrations to the students in this study are correlated, it was thought best to simply report the mean scores on those tests before and after the classroom experiences. These scores are given in Tables 3 and 4. Although nothing is asserted regarding the significance of the differences between the pre and post instructional scores, it should be noted that students in all five groups scored higher on at least four of the five reading variables after the semester of instruction or tutoring than before.

On the third variable, comprehension on the DRT, students in the three groups which participated in the Fall showed no gain or a small decrement in this score, whereas the two Spring groups showed small gains on this measure.

Table 2. T TEST ON FOUR READING VARIABLES

	DIAGNOSTIC READING TEST			STEP-READING	
	Rate	Voc.	Comp.	Total Score(Converted)	
Tutors (E1)	1.939 NS	11.959 P<.01	-6.178 P<.01	1.937 NS	df=30
Tutees ($E2_a$)	.638 NS	5.874 P<.01	-1.987 NS	1.125 NS	df=22
Control	5.550 P<.01	10.000 P<.01	- .1619 NS	5.904 P<.01	df=19
Tutors ($E2_b$)	6.438 P<.01	17.769 P<.01	4.005 P<.01	1.900 NS	df=18
Tutees (E3)	8.823 P<.01	26.035 P<.01	8.278 P<.01	3.142 P<.01	df=19

On the fifth variable, STEP-READING converted score, all groups showed a gain. Using the national school norms, the mean converted score was translated into a percentile for both the pre- and post-tests. The percentiles and the differences are shown (Tables 3 and 4) under the mean converted score for each group.

The national school norms for the STEP-READING test place the Fall tutors (E1) at the 49th percentile on the pre-test and at the 61st percentile on the post-test. This is a gain of 12 percentiles.

The national mean school norms for the STEP-READING place the Fall tutees ($E2_a$) at the 24th percentile on the pre-test and at the 39th percentile on the post-test. This is a mean gain of 15 percentiles. For these same students their Fall post-test score was used as their Spring pre-test score beginning the period of their serving as tutors. The Spring tutors ($E2_b$) therefore moved from the 39th percentile on the pre-test to the 58th percentile on the post-test. This is a mean gain of 19 percentiles. For the two total semesters the tutees-who-became-tutors made a mean gain of 34 percentiles based on national school norms.

The national mean school norms for the STEP-READING place the Control Group at the 6th percentile on the pre-test and the 11th percentile on the post-test. This is a mean gain of 5 percentiles. Although the Control Group gained the greatest number of converted score points on the STEP-READING, their percentile gain was considerably smaller than any other group.

The national mean school norms for the STEP-READING place the Spring tutees (E3) at the 17th percentile on the pre-test and a post-test mean of 39th percentile. This is a mean gain of 22 percentiles.

For the classroom teacher, these scores may be the most significant. Such gains can be determined without the assistance of a statistician and a sophisticated analysis.

Of particular interest is the Control Group's gain. Although their percentile gain was low compared to other groups, the sophisticated statistical analyses show the Control Group out-performing the Experimental groups. There may be some important implications here, particularly when the percentile rank on the pre-tests are considered.

Care must be taken in comparing teachers' (or teachers' students') success through the use of standardized test scores. It is altogether possible that a few points gained by one group of students may be more significant than many points gained by another group of students. In all other analyses, scores from both the STEP-READING and DRT were combined, not considered separately.

Table 3. MEAN READING SCORES (FALL GROUPS)

	PRE TEST		POST TEST		
TUTORS (E1) DRT-Survey	Mean	S.D.	Mean	S.D.	Difference
Rate	265.875	58.882	275.866	81.323	+14.419
Voc.	30.888	6.819	39.200	10.393	+ 7.573
Comp.	23.158	6.939	19.533	7.570	- 3.702
Total Score	54.000	12.832	58.733	16.126	+ 3.683
STEP-Reading					
Converted Score	293.629	11.596	295.466	14.394	+ 1.937
	49th %ile		61st %ile		+12 %iles
TUTEES (E2a) DRT-Survey					
Rate	239.650	58.504	247.450	56.379	+ 7.034
Voc.	29.400	6.621	33.550	7.331	+ 5.425
Comp.	22.650	5.623	21.250	3.713	- .416
Total Score	52.050	10.698	54.800	9.662	+ 5.009
STEP-Reading					
Converted Score	290.850	11.525	292.300	9.644	+ 3.717
	24th %ile		39th %ile		+15 %iles
CONTROL GROUP DRT-Survey					
Rate	194.235	65.272	224.333	63.018	+30.048
Voc.	25.619	6.636	32.571	8.704	+ 6.952
Comp.	19.285	5.183	19.190	7.326	- .095
Total Score	45.857	11.502	51.714	14.797	+ 5.857
STEP-Reading					
Converted Score	280.904	12.094	286.809	12.575	+ 5.905
	6th %ile		11th %ile		+5 %iles

Table 4. MEAN READING SCORES (SPRING GROUPS)

	PRE TEST		POST TEST		
TUTEES WHO BECAME TUTORS (E2b) DRT-Survey	Mean	S.D.	Mean	S.D.	Difference
Rate	247.450	56.379	282.300	72.683	+40.850
Voc.	33.550	7.331	45.900	8.665	+12.350
Comp.	21.250	3.713	23.600	5.748	+ 2.350
Total Score	54.800	9.662	69.500	13.093	+14.700
STEP-Reading					
Converted Score	292.300	9.644	294.200	14.261	+ 1.900
	39th %ile		58th %ile		+19 %iles
TUTEES ONLY (E3) DRT-Survey					
Rate	198.239	48.790	246.000	63.565	+47.500
Voc.	29.405	10.071	47.500	10.375	+18.500
Comp.	19.043	7.223	23.900	7.361	+ 4.996
Total Score	48.448	15.525	71.400	15.730	+23.496
STEP-Reading					
Converted Score	288.381	12.265	292.150	12.986	+ 3.769
	17th %ile		39th %ile		+22 %iles

As a second step in the analysis, the pre and post instructional scores were converted to change scores by subtracting the pre from the post scores. The resulting scores were the data on which all subsequent analyses were performed.

In order to ascertain the significance of the differences between the change scores for the various experimental and control groups, a multiple discriminant analysis (MDA) was performed. This analysis, mathematically equivalent to the multivariate analysis of variance for single factor designs, consists basically of the computation from a set of measures on each member of several groups of individuals, a linear function of those measures which best separates the individuals into the a priori groups. In other words, MDA is used to determine whether or not a set of measures can be combined by a linear function in such a way as to permit the subjects to be correctly assigned to groups at better-than-chance frequency. A more detailed discussion of MDA can be found in either Psychometric Theory by Nunnally (1967) or Applied Multivariate Analysis by Overall and Klett (1972).

For the purposes of the multiple discriminant analyses, only variables one, two, three and six were utilized since variable 4 (total score on the DRT) and variable 5 (raw score on the STEP-READING) were perfectly correlated with certain of the other variables.

The first MDA, reported in Table 5 was performed on various groups using means of change scores. Grouping all tutors and all tutees against the controls resulted in a X^2 of 9.773 which with 8 degrees freedom is non-significant. All other combinations of scores, such as tutees vs. control, tutors vs. tutees, and tutors vs. control, were non-significant.

The second MDA, reported in Table 6, was done on all five groups -- Fall tutees, Fall tutors, controls, Spring tutors and Spring tutees. This analysis resulted in a Chi square of 76.970 which with 16 degrees freedom is significant at the .01 level. Looking at the investigator's students as a whole for the year, significant reading gains were made.

Group mean difference scores found in the MDA summary (Table 6) show that the Spring groups had much larger gains on three of the four variables than did the Fall groups.

The results of the MDA performed on all groups and discussed above suggested a third MDA on Fall versus Spring groups. The third MDA is reported in Table 7. This analysis resulted in a Chi square of 47.68 which with 4 degrees freedom was significant at the .01 level. The analysis resulted in a D^2 of 1.9320.*

In addition, the D^2 coefficients between groups (a measure of the difference between the members of each of the possible groups) reveals that the greatest difference is between the two Spring groups and the three Fall groups. (Table 8)

* See Nunnally (1967) for further explanation of Mahalanobis D^2.

Table 5. MDA ON VARIOUS GROUPS USING MEANS OF CHANGE SCORES

	ALL TUTORS ($E1, E2_b$) &	ALL TUTEES ($E2_a, E3$) vs.	CONTROL	X^2	df	LEVEL OF SIGNIFICANCE
DRT						
Rate	24.027	24.133	30.047			
Voc.	10.555	10.622	6.952			
Comp.	- 0.305	1.644	- 0.095			
STEP	1.916	2.066	5.904	9.773	8	N.S.

		ALL TUTEES ($E2_a, E3$) vs.	CONTROL			
DRT						
Rate		24.133	30.047			
Voc.		10.622	6.952			
Comp.		1.644	- 0.095			
STEP		2.066	5.904	6.929	4	N.S.

	TUTORS (E1) vs.	TUTEES ($E2_a$)				
DRT						
Rate	10.500	3.458				
Voc.	8.312	4.083				
Comp.	- 3.625	- 1.166				
STEP	1.937	1.125		9.800	4	N.S.

	ALL TUTORS ($E1, E2_b$)	vs.	CONTROL			
DRT						
Rate	24.027		30.047			
Voc.	10.555		6.952			
Comp.	- 0.305		- 0.095			
STEP	1.916		5.904	7.096	4	N.S.

Table 6. MDA SUMMARY OF READING SCORES FOR ALL FIVE GROUPS

	Tutors Fall,(E1)	Tutees Fall,($E2_a$)	Control Fall	Tutors Spr.($E2_b$)	Tutees Spr.(E3)
DRT					
Rate	10.500	3.458	30.047	34.850	47.761
Voc.	8.312	4.083	6.952	12.350	18.095
Comp.	- 3.625	- 1.116	- 0.095	2.350	4.857
STEP-Reading	1.937	1.125	5.904	1.900	3.142

X^2= 76.970 df=16 P < .01

Table 7. MDA SUMMARY OF READING SCORES FOR FALL VS. SPRING GROUPS

	Fall Groups ($E1,E2_a,C$)	Spring Groups ($E2_b$,E3)
DRT		
Rate	10.806	41.461
Voc.	5.677	15.292
Comp.	- 1.725	3.634
STEP-Reading	2.854	2.536

X^2= 47.68 df=4 P < .01 (favoring Spring Group)

Unfortunately this Fall-Spring difference confounds the other comparisons, for example, the tutee and tutor vs. control. Since there was no control group for the Spring semester and since there were Fall-Spring differences, the remainder of the comparisons must be interpreted with caution.

Table 8. D SQUARE COEFFICIENTS BETWEEN GROUPS ON TWO READING TESTS

Tutors (E1)	vs. Tutees ($E2_a$)	= 0.6042	(Fall to Fall)
(E1)	vs. Control	= 0.5350	(Fall to Fall)
(E1)	vs. Tutors ($E2_b$)	= 1.5675	(Fall to Spring)*
(E1)	vs. Tutees (E3)	= 3.8915	(Fall to Spring)*
Tutees ($E2_a$)	vs. Tutors ($E2_b$)	= 1.2970	(Fall to Spring)
(Group against itself)			
($E2_a$)	vs. Control	= 0.4839	(Fall to Fall)
($E2_a$)	vs. Tutees (E3)	= 3.6635	(Fall to Spring)*
Control	vs. Tutors ($E2_b$)	= 0.7479	(Fall to Spring)*
	vs. Tutees (E3)	= 2.6048	(Fall to Spring)*
Tutees ($E2_b$)	vs. Tutees (E3)	= 0.6011	(Spring to Spring)
All Fall Groups	vs. All Spring	= 1.9320	(Fall to Spring)

* The greatest differences were apparent when Spring groups were compared to Fall groups.

The factors possibly influencing the increment (or decrement) of the Fall tutors' (E1) scores are as follows:

1. The students were drawn from other teams and therefore, other teachers, to become tutors. Their experience in the reading lab had been varied according to who their first-semester teacher (Spring 1971) had been.

2. They had not received tutoring and had not anticipated becoming tutors.

3. Because of the group cohesiveness encouraged among sections and teams, the original group of tutors felt misplaced in their new team. They were unusually critical of the new combination of teachers to whom they had been assigned.

The factors possibly influencing the tutors, tutees, and the faculty during the Fall semester were as follows:

1. In order to fully utilize the reading lab facilities and ease a tight schedule, two sections of approximately

twenty-two students each were assigned to the reading lab each hour. One section of these students, during the Fall semester, was from another team and were strangers to the tutors and tutees. The reading teacher in charge of the other section was seldom able to match her presentations to those of the investigator. To say the least, the reading lab was chaotic.

2. The first signs of racial unrest became visible during Fall registration and were directed primarily toward the Basic Studies program. A group of minority students boycotted the department during registration. When other minority students attempted to sign up for courses, they were called aside to have peer pressure exerted. In some cases, schedule cards which had been prepared by counselors were erased by the organized group and changed.

   The situation had a negative effect on all students, but especially the minority students who wanted to tutor. The minority students who enrolled in the Basic Studies program in spite of pressure continued to be harrassed off campus and outside of class.

3. In looking for budget improvements, administrative attention was directed toward the relatively expensive Basic Studies program (low student-teacher ratio). When the boycott reduced the enrollment further, the solution was quickly and openly decided -- a team would be dissolved. Therefore, six teachers would be released or placed in another division. None of the teachers knew who would be affected; eventually, the six were reassigned to other departments.

4. The decline in morale which resulted from job insecurity was compounded by the fact that the division chairman was on leave of absence and had a temporary replacement. The acting division chairman performed outstandingly but was unable to effectively calm the restless faculty. Teachers who had previously worked closely as a team suddenly became more interested in individual self-preservation than in the team's function. This new attitude was unfortunately and inadvertantly carried into the classroom.

The factors possibly influencing the increment of the Spring tutors and tutees were as follows:

1. The students who became tutors after one semester of being tutored were better prepared for their jobs because of identical pre-service experience and anticipation of the task ahead.

2. The experience which had been gained by both tutors and investigator during the Fall semester was

undoubtedly a positive factor toward a more successful Spring semester.

3. The Spring tutors had the advantage of the "everybody-working-on-the-same-thing" approach, reducing any frustration which may have existed concerning their personal reading gains.

4. The Spring tutors exhibited a more positive attitude toward their tutoring tasks after being issued their own books or "tutor's manuals" which were not issued to tutees.

5. The tutees seemed to have more faith in the abilities of their tutors during the Spring.

6. Although there were two sections of students assigned to the reading lab each hour of the Spring semester, all students were the investigator's subjects; all students had the same goals and objectives. There was little distraction or confusion in the room.

It was not foreseeable that a control group should be established for each semester. However, even if the investigator had realized the need for a Spring control group, it would have been impossible to assemble one. The Spring enrollment was down and the new students had to be evenly distributed between the three vertical teams.

The absence of a Spring control group was better than a control group composed of students from another vertical team with a different reading teacher. The different teacher-different team variable would have hopelessly confounded the study.

Looking simply at mean change scores for the groups compared, however, it can be observed that the controls and the tutees made better reading score gains in each comparison.

Although the scores are different, they are not significantly different. Therefore, it cannot be said, based on this study, that any one group learned more than another.

All students did make gains, most students enjoyed the tutoring program. Attrition was low (5% for the year), there was an obviously happier atmosphere in the reading lab.

One of the major objectives of the program has always been to develop a love for reading. More paperback books were circulated through the lab than ever before. Almost three hundred books were never returned. It is known, however, that many of those books were being used and passed on because of the book reports made to the counselor and because of the sources cited in research papers done for other teachers on the team.

As James E. Allen has said,

> ". . .The inability to read effectively, contaminating as it does every other dimension of education, is clearly one challenge deserving of our concentrated efforts. It must be recognized also, however, that of the majoritv who do acquire the basic reading skills, there can also be a barrier which limits one's fulfillment of his right to read. This barrier exists when the skill of reading is not accompanied by the desire to read. We fail, therefore, just as much in assuring the right to read when the desire is absent as when the skills are missing."

It is clear to the investigator that the students' desire to read and pleasure in reading increased.

Self Concept

A T test was performed on the Tennessee Self-Concept Scale (TSCS) scores as it was on the four reading variables. (Table 9)

Table 9. T TEST ON TENNESSEE SELF-CONCEPT SCALE

	Physical Self	Moral Ethical	Personal Self	Family Self	Social Self	Total Positive	
Tutors(E1)	34.8242 P<.001	39.4939 P<.001	1.7811 NS	-2.5732 P<.05	32.8810 P<.001	4.9111 P<.001	df=28
Tutees($E2_a$)	.5062 NS	.0209 NS	2.1331 NS	2.0352 NS	1.2420 NS	2.0288 NS	df=36
Control	2.8716 P<.01	1.7432 NS	2.2845 P<.05	2.2270 P<.05	4.6836 P<.01	4.4351 P<.01	df=40
Tutors($E2_b$)	.8499 NS	3.923 P<.01	2.806 P<.01	3.385 P<.01	3.451 P<.01	4.581 P<.01	df=36
Tutees(E3)	.2818 NS	2.303 P<.05	2.234 P<.05	1.448 NS	2.560 P<.05	2.526 P<.05	df=40

As with the reading measures, the self-concept scores were first converted to mean change scores. Examination of Tables 10 and 11, which show the self-concept mean scores for all five groups, reveals that the greatest gains were made by the control group and by the tutors

Table 10. GROUP MEAN SCORES ON TENNESSEE SELF CONCEPT SCALE (FALL GROUPS)

	PRE TEST		POST TEST				Level of
	Mean	S.D.	Mean	S.D.	Difference	df	Significance
TUTORS (E1)							
Physical Self	32.333	6.876	64.666	8.592	32.333		.001
Moral-Ethical	19.533	6.248	49.733	3.567	30.200		.001
Personal Self	51.866	12.685	53.533	7.237	1.666		NS
Family Self	67.800	10.133	65.600	7.454	- 2.200		.05
Social Self	40.600	4.557	65.666	8.267	25.066		.001
Tot. Positive	286.133	5.440	299.000	24.786	12.866	28	.001
TUTEES ($E2_a$)							
Physical Self	68.947	7.007	68.947	8.546	0.000		NS
Moral-Ethical	48.526	5.861	48.426	7.553	- 0.100		NS
Personal Self	53.947	6.931	55.947	7.728	1.950		NS
Family Self	63.473	10.479	64.523	9.891	1.050		NS
Social Self	64.210	8.062	65.360	7.741	1.150		NS
Tot. Positive	299.105	27.968	303.155	29.809	4.050	36	NS
CONTROL							
Physical Self	64.619	10.344	67.285	8.356	2.666		.01
Moral-Ethical	48.238	6.816	49.571	6.904	1.333		NS
Personal Self	52.666	7.066	54.809	7.997	2.142		.05
Family Self	52.523	8.888	60.428	10.088	1.904		.05
Social Self	60.428	7.780	64.000	8.240	3.571		.01
Tot. Positive	284.476	32.211	296.095	33.212	11.619	40	.01

Table 11. GROUP MEAN SCORES ON TENNESSEE SELF CONCEPT SCALE (SPRING GROUPS)

TUTORS WHO HAD BEEN TUTEES (E2b)	PRE TEST Mean	PRE TEST S.D.	POST TEST Mean	POST TEST S.D.	Difference	df	Level of Significance
Physical Self	68.947	8.546	69.547	10.385	0.600		NS
Moral-Ethical	48.426	7.553	51.176	6.308	2.750		.01
Personal Self	55.947	7.728	58.147	8.659	2.200		.01
Family Self	64.523	9.891	67.523	10.025	3.000		.01
Social Self	65.360	7.749	67.710	9.945	2.350		.01
Tot. Positive	303.155	29.809	314.105	36.244	10.950	36	.01
TUTEES ONLY (E3)							
Physical Self	66.190	13.058	65.000	13.334	-1.190		NS
Moral-Ethical	48.619	8.925	50.380	13.552	1.761		.05
Personal Self	50.571	9.868	52.666	12.009	2.095		.05
Family Self	62.761	11.595	64.000	12.876	1.238		NS
Social Self	61.809	12.396	63.761	13.362	1.952		.05
Tot. Positive	289.523	51.294	296.142	61.234	6.619	40	.05

($E2_a$ and $E2_b$). The control group's average gain was 11.619 points while the tutees-who-became-tutors' total average gain for two semesters was 15.000 points, and the Fall tutors' (E1) gain was 12.866 for their second semester only.

The second step of the self-concept analysis was to perform an MDA, as on the reading variables, in order to ascertain the significance of the differences between the change scores for various experimental and control groups.

For the purposes of the multiple discriminant analyses on the Tennessee Self-Concept Scale (TSCS) only one variable, the difference in the pre- and post- "total positive" score was used.

Table 12 illustrates the results of MDA on varous group combinations. All tutors paired with all tutees and compared to the controls resulted in a X^2 of 45.433 which with 12 degrees freedom was significant at .001 level.

Those students who lacked confidence in their reading or academic ability and who received tutoring from peers made smaller gains in self-concept during the period of being tutored than those students who did not receive peer tutoring at all. However, the MDA of those scores showed that the difference was non-significant.

The second MDA on self-concept scores reported in Table 13 was done on all five groups -- Fall tutees, Fall tutors, controls, and Spring tutors and Spring tutees. The analysis resulted in a Chi square of 1284.01 which with 24 degrees freedom was significant at the .001 level.

As with the reading scores, this Fall-Spring difference confounds the other comparisons. Since there was no control group for Spring and since there were Fall-Spring differences, the remainder of the comparisons must be interpreted with caution.

Additional combinations and their D^2 coefficients for the TSCS scores will be found in Table 15.

Table 12. MDA ON MEAN CHANGE SCORES OF TSCS FOR VARIOUS GROUPS

	ALL TUTORS (E1,E2b)	& ALL TUTEES (E2a,E3)	vs. CONTROL	X^2	df	LEVEL OF SIGNIFICANCE
Physical	14.200	- 0.609	2.666			
Moral-Eth	14.514	0.853	1.333			
Personal	1.971	2.024	2.142			
Family	0.771	1.146	1.904			
Social	12.085	1.560	3.571			
Tot. Pos.	11.771	5.365	11.619	45.433	12	P < .001
Physical		- 0.609	vs. 2.666			
Moral-Eth		0.853	1.333			
Personal		2.024	2.142			
Family		1.146	1.904			
Social		1.560	3.571			
Tot. Pos.		5.365	11.619	5.394	6	NS
Physical	14.200	vs.	2.666			
Moral-Eth	14.514		1.333			
Personal	1.971		2.142			
Family	0.771		1.904			
Social	12.085		3.571			
Tot. Pos.	11.771		11.619	15.769	6	P < .02
Physical	14.200 vs.	- 0.609				
Moral-Eth	14.514	0.853				
Personal	1.971	2.024				
Family	0.771	1.146				
Social	12.085	1.560				
Tot. Pos.	11.771	5.365		30.379	6	P < .001

	FALL TUTORS (E1)	vs.	SPRING TUTORS (E2b)			
Physical	32.333		0.600			
Moral-Eth	30.200		2.750			
Personal	1.666		2.200			
Family	- 2.200		3.000			
Social	25.066		2.350			
Tot. Pos.	12.866		10.950	69.227	6	P < .001

	FALL TUTEES (E2a)	vs.	SPRING TUTEES (E3)			
Physical	0.000		- 1.190			
Moral-Eth	- 0.100		1.761			
Personal	1.950		2.095			
Family	1.050		1.238			
Social	1.150		1.952			
Tot. Pos.	4.050		6.619	2.812	6	NS

Table 13. MDA ON TSCS SCORES FOR ALL FIVE GROUPS

	Tutors Fall,(E1)	Tutees Fall,($E2_a$)	Control Fall	Tutors Spr.($E2_b$)	Tutees Spr.(E3)
Physical	32.333	0.000	2.666	0.600	- 1.190
Moral-Eth	30.200	- 0.100	1.333	2.750	1.761
Personal	1.666	1.950	2.142	2.200	2.095
Family	- 2.200	1.050	1.904	3.000	1.238
Social	25.066	1.150	3.571	2.350	1.952
Tot. Pos.	12.866	4.050	11.619	10.950	6.619

X^2= 1284.01 df=24 P < .001

Table 14. MDA ON TSCS SCORES FOR FALL VS. SPRING GROUPS

	Fall Groups	Spring Groups
Physical	9.660	- 0.317
Moral-Ethical	8.553	2.243
Personal	1.946	2.146
Family	0.500	2.097
Social	8.464	2.146
Total Positive	9.250	8.731

X^2- 17.652 df=6 P < .01

Table 15. D SQUARE COEFFICIENTS BETWEEN GROUPS ON TSCS

Tutors (E1)	vs. Tutees ($E2_a$)	= 102.8890	(Fall to Fall)
(E1)	vs. Control	= 97.4710	(Fall to Fall)
(E1)	vs. Tutors ($E2_b$)	= 100.7323	(Fall to Spring)
(E1)	vs. Tutees (E3)	= 102.1235	(Fall to Spring)
Tutees ($E2_a$)	vs. Tutors ($E2_b$)	= 0.0114	(Fall to Spring)
(Group against itself)			
($E2_a$)	vs. Control	= 0.0732	(Fall to Fall)
($E2_a$)	vs. Tutees (E3)	= 0.0014	(Fall to Spring)
Control	vs. Tutors ($E2_b$)	= 0.0268	(Fall to Spring)
	vs. Tutees (E3)	= 0.0542	(Fall to Spring)
Tutors ($E2_b$)	vs. Tutees (E3)	= 0.0047	(Spring to Spring)
All Fall Groups ($E1,E2_a,C$)	vs. All Spring ($E2_b,E3$)	= 0.2745	(Fall to Spring)

The self-concept gain for the Fall tutees was statistically non-significant. In the Spring while serving as tutors they gained an average of 10.950 points, significant at the .01 level.

The Fall tutors (E1) made the greatest gains in self-concept of all the groups. Their increase was 12.866 points with twenty-eight degrees of freedom significant at the .001 level. Perhaps their reading gains and experience coupled with the improved self-concept will provide more academic success for them in the future. It would be helpful to be able to do a follow-up study of this group, measuring them again after another semester of college outside the BAS program.

The second group of tutees (Spring, E3) who were tutored by the better-prepared group of tutors gained 6.619 points in self-concept with 40 degrees of freedom, significant at the .05 level. Their increment in self-concept is considered good although it was smaller than either tutor group or the control group.

Both groups of tutees had no gain or decrements in "physical self" and the Fall tutees had a decrement in "moral-ethical self." The highest increment for both groups of tutees was in "personal self" and the next greatest gain was in their "social self."

The Control group made higher scores than either tutee group on each of the self-concept subscores except "moral-ethical self." However, the MDA comparing all tutees to the control group indicates a X^2 of 5.394 with 6 degrees freedom and a non-significant difference in self-concept. At the same time the MDA comparing all tutees to the Control group indicates a X^2 of 6.929 with 4 degrees freedom and a non-significant difference in reading scores.

The Control group pre-tested lower on self-concept than either of the two other groups receiving instruction, and in spite of their 11.619 gain, they still post-tested with a lower self-concept than the other two groups.

The gains and decrements in reading were not consistent with gains and decrements in self-concept. Perhaps the role and responsibility assigned each student had a more significant effect on self-concept than reading progress as measured by standardized tests.

A question as to whether the self-concept gains can be attributed to the tutorial program could be raised. Concurrent to this project, Manatt (1972) was measuring the self-concept gains of Basic Studies students against various other groups at TCJC, South Campus. The results of the "How I See Myself Scale" (Gordon, 1968) indicated no significant changes in the level of self-concept for the Basic Studies students:

> The developmental education program under investigation did not have a statistically significant effect on its enrolees' self-concept. (Manatt, p. 45)

Therefore, the self-concept gains made by the tutors in this project could be said to be attributal to the tutoring program. Of course, the difference in gain could also lie in the difference between the "How I See Myself Scale" and the Tennessee Self-Concept Scale. No correlations have been done on the two tests.

The statistical consultant to this project was Dr. Charles Tom Bisbee. Additional consultation was provided by Dr. David Harris. Both men were associated with the Institute for the Study of Cognitive Systems, Texas Christian University, Fort Worth, Texas.

CONCLUSIONS

1. Disadvantaged freshmen college students do not improve their reading efficiency at a significantly higher level when group instruction is supplemented by peer tutorial instruction ($E2_a$, E3) when compared to disadvantaged freshmen college students who do not receive tutorial assistance (C1). The MDA for tutees vs. control indicates no significant difference in gains of the two groups receiving instruction.

2. Disadvantaged freshmen college students do score higher on DRT vocabulary and comprehension subscores when group instruction is supplemented by peer tutorial instruction ($E2_a$, E3) when compared to disadvantaged freshmen college students who do not receive tutorial assistance (C1).

3. Disadvantaged freshmen college students do score higher on the DRT subtests of rate, comprehension, and vocabulary, and the STEP-READING total score when group instruction is supplemented by peer tutorial instruction ($E2_a$, E3) when compared to the original group of tutors (E1) who received no tutorial assistance.

4. Disadvantaged students who are tutored and subsequently become tutors in reading ($E2_b$) do not improve their reading at a significantly higher level than other disadvantaged students not participating in the peer tutorial program (C1). The MDA for all tutors vs. control indicates no significant difference in gains of the two groups.

5. Students who serve as tutors ($E2_b$) make greater gains in most reading skills while serving as tutors than while being tutored ($E2_a$). In other words, the students who are given tutoring responsibilities progress more as "teachers" than as "teacher trainees" or students.

6. Those students who serve as reading tutors (E1, $E2_b$) do improve their self-concept at a significantly higher level than those students not involved with tutoring (C1). The MDA for tutors vs. control indicates significance at the .02 level.

7. Those students who are tutored ($E2_a$, E3) in reading do not improve their self-concept at a significantly higher level than do other disadvantaged students who do not participate in the tutorial program (C1). The MDA for tutees vs. control indicates non-significant differences in gains for the two groups.

8. Students who serve as tutors ($E2_b$) make greater gains in every area of self-concept while serving as tutors than while being

tutored (E2a). In other words, the students make greater self-concept gains in the role of "teacher" than in the role of "teacher trainee."

9. Experience with a tutoring program for both the director and the students involved brings about greater success in both reading and self-concept development, as indicated by the difference in Fall and Spring scores. Better gains were made during the second semester of the project.

10. The students' experience as tutee before becoming a tutor is better preparation for the job than simply attending in-service sessions. The Spring tutors (E2b) made better reading gains while serving as tutors than the previous group of tutors (Fall, E1). They led the Spring tutees (E3) into better gains than they themselves had been led into.

RECOMMENDATIONS

1. There is no standardized reading test which tests the under-achieving community college freshman adequately or fairly. New tests need to be developed.

2. The greater reading gains made by the Spring tutors and tutees could have been affected by the curriculum and materials changes suggested by the Fall students. Most of the materials used in the Fall were traditional lab supplies and easier than typical college-level reading. The materials used in the Spring were written for community college students and more closely approached the interest level of freshmen as well as their concept of what college material is supposed to be. The investigator now believes that with the disadvantaged or low-achieving community college freshman it is better to thoroughly teach a small amount of difficult or mature material than to teach with a great deal of easy material. Whereas the more mature or academically-sure college student is willing to practice reading skills with almost any material, the academically uncertain or unskilled student will become defensive. This will adversely affect both his reading progress and his self-concept. The investigator recommends further exploration of this possibility.

3. To give the students a voice as to the materials they will use and the sequence in which they will use the materials is recommended. Comparing their skill sequence recommendations with their standardized tests gives additional insight into the student's perception of needs, interests and self-concept.

4. Don't wait for funding. The volunteer tutors may very well do the best job.

5. Knowledge of the effectiveness of voluntary peer tutoring would be valuable and the results might be more practical for most classroom teachers. However, the investigator recommends rewards in some form even for volunteers.

6. Since tutors and tutees from the same class reduce scheduling problems, such an arrangement is recommended whenever possible.

7. Peers who know each other well may not work at the task seriously. It may be wise for the tutor and tutee to begin as strangers.

8. Tutor in-service meetings are highly recommended:

   a. to give confidence to the tutor
   b. for discussing the difficult one-to-one relationship especially where there is an age, maturity, or experience gap.

9. In implementing a tutoring program the tutors' in-service training should begin before the semester begins so that the tutors may begin to function in the classroom immediately. It is believed that this lends enthusiasm and professionalism to the situation.

10. Some students do not or would not care to try to function in a one-to-one situation. They do work better and/or faster alone. However, these students might, with encouragement, perform well as tutors or "buddy teachers."

11. The tutees may have to be bribed and rewarded for accepting help.

12. To counteract the possible decrement in tutee self-concept, give those students special responsibilities of a similar nature or equal importance and status to tutoring.

13. A professional library is of little value to busy peer tutors. The teacher or tutor director should tell them what they need to know or do next.

14. A quick, informal test of self-concept is the simple question, "Do you feel better about yourself now than you did when school began?" Response to this question will be more positive than the results of a standardized test. It would be interesting to chart the responses of a group to the question "Do you feel better about yourself now than when (school began) (at the beginning of class)?" Asked frequently and in a variety of circumstances, the question, alone, might result in the students' developing (or reporting) a more positive self-concept.

15. The self-concept scores were available on the Fall tutors (E1) for their previous semester of schooling. However, these scores were inadmissable data since the six "self-incriminating" items had not been deleted prior to administration of the test. The results of several groups of tutees who become tutors should be recorded and compared over a period of more than one year.

16. In this study the students were not told their scores on standardized reading tests until after the self-concept tests were also administered. However, the students did take the post-test in self-concept after being told the results of psychological testing done by the team counselor (including IQ scores). The variable of knowledge of other test results should be provided for in the future.

17. A formal study of the faculty attitudes and self-concept and its influence on the attitudes and self-concept of their students is suggested by this study.

18. Directing a tutoring program is time-consuming and requires additional planning. Be prepared for this problem.

19. A seventy-two hour reading program which is spread over a full two semesters may get smaller gains than the shorter reading

course covered in a shorter time period. However, the gains made over the long period of time may be more realistic. This should be considered in classroom experiments.

20. Keep the enthusiasm high. Begin the program soon after it is announced and don't let it die ahead of a target date. The students must be made to feel needed and qualified, and appreciated.

21. If considering the use of statistics and computers, allow extra time for the research project. Technically correct analyses may require the consultation of Ph.D's in psychological math and computer technology. Such people are brilliant, but may have great difficulty understanding the dynamics of a classroom. Much discussion and explanation was necessary with this project. Also, cards are sometimes rejected by the computer and need to be re-punched. Computer time is difficult to schedule at certain times of the year, such as at registration and during finals.

22. Educational research performed by experienced teachers in an actual classroom over a period of actual school time is quite different from the "educational research" performed by researchers with single or small-group subjects in isolated situations with well-controlled variables. It is recommended that the classroom teacher be given additional encouragement and assistance in conducting, analyzing and reporting classroom successes and failures.

23. It is further recommended that the statisticians who intend to work with educational data become knowledgeable in the social sciences, as the consultants to this research project have done, so that they can contribute to bridging the communication gap and therefore, improve the quality of educational research.

24. To simply implement a research project such as this one, to teach one subskill to one student, or to work for far-reaching results which lead to the needed breakthroughs in education, the teacher must be given the freedom to fail. The teacher who is given that freedom must also be ready to accept it. Only then will risk-taking and creativity be possible.

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Appendix A

The Variables of the Diagnostic Reading Test
and the Sequential Test of Educational Progress-Reading

DRT-Survey
Upper Level

Variables	Responses	Time Limit	Total Time
1. Rate		(3 minutes)	
2. Vocabulary	60	(10 minutes)	
3. Total Comprehension	40	(30 minutes)	
4. Total Score	100		(40 minutes)

STEP-READING
Forms 2A, 2B

5. Raw Score	70	(35 minutes per section)	(70 minutes)
6. Converted Score (a three digit number for statistical purposes)			

In the Diagnostic Reading Test the rate is measured in the first three minutes of the first reading selection. After three minutes is measured the student has twelve minutes to complete the selection and answer twenty questions.

Then the vocabulary test gives the student ten minutes to answer sixty questions.

The final fifteen minutes of the test asks the student to read short selections followed by questions totaling twenty responses for the part.

The STEP test is composed of selections from plays, letters, directions, poetry, stories, and other types of materials. In time segments of thirty-five minutes students read short selections and answer about five questions following each selection, for a total of thirty-five questions each thirty-five minutes. Forms 2A and 2B were used in this study for statistical purposes. These forms were designed for tenth to twelfth grade students. Twelfth grade norms were used in converting raw score to the converted score which was necessary for statistical analysis.

In the MDA analyses the fourth and fifth variables were omitted since their use would have been redundant.

Appendix B

ATTITUDE-INTEREST INVENTORY

Name_____Team___Section_____Date_____

Directions: Complete the following sentences to express how you <u>really</u> feel. There are no right or wrong answers. Put down what first comes into your mind. <u>Work as quickly as you can</u>.

1. Today I feel

2. When I have to read, I

3. I get angry when

4. To be an adult

5. My idea of a good time

6. I wish my parents knew

7. High school was

8. I can't understand why

9. I feel bad when

10. I wish teachers

11. I wish my mother

12. College is

13. To me, books

14. People think I

15. I like to read about

16. On weekends, I

ATTITUDE-INTEREST INVENTORY Pg. 2

17. I don't know how

18. To me, homework

19. I hope I'll never

20. I wish people wouldn't

21. When I finish school

22. I'm afraid

23. Paperback books

24. When my parents receive my grades

25. Most brothers and sisters (family)

26. I am at my best when

27. I'd rather read than

28. When I read math

29. The future looks

30. I feel proud when

31. I wish my father

32. I like to read when

33. I would like to be

34. For me, studying

ATTITUDE-INTEREST INVENTORY Pg. 3

35. I often worry about

36. I wish I could

37. Reading Science

38. I look forward to

39. I wish someone would help me

40. I'd read more if

41. Special help in reading

42. Every single word is

43. My eyes

44. The last book I read

45. My mother helps

46. Reading in high school

47. My best friend thinks reading

48. I read better than

49. A good magazine

50. I would like to read better than

Appendix C

TCJC, South
Reading Improvement 1601

STUDENT PERSONAL DATA FORM

Name _____ Team____ Section_____ Instr._____

Local Address _____
Street City Zip

Permanent Home Address (if different) _____

Social Security Number _____

Local Ph. Number where you can be reached _____

Date of Birth _____ Age____ Marital st tus_____

How many children, if any?_____

High School attended_____, _____ Date Grad._____
School City

Do you have a job?_____ If so, where?_____

What hours do you work?_____ What are your duties?_____

With whom do you live at this time? (Check one)

Both parents_____
Mother only_____
Father only_____
Wife/husband_____
Other relative_____

In a dorm_____
In an apartment alone_____
Share apartment with friends_____

Have you attended any other college?_____ If yes, where?_____

Have you had any special reading instruction since 6th grade?_____
If yes, explain:

Appendix D

Reading Improvement 1601

PHYSICAL INVENTORY

Name_____ ____Team____Section_____Instr._____

1. Do you have any difficulty in seeing clearly in the distance?_____
   at near?_____
2. Do you have any headaches from reading?
3. Do you find it difficult to concentrate and sustain effort while reading or studying?
4. Do you see double (not blurred) sometimes when looking in the distance or reading?
5. Do you have a stiff neck or backache after you read or study for an extended time?
6. How long a time can you continue to read or study comfortably and effectively?
7. How long (with no more than a five minute break) can you force yourself to read or study?
8. Give the date of your last eye exam other than for drivers' license.
9. Do you frequently ask friends to repeat what they have said?
10. Have you experienced difficulty in hearing teachers?
11. Does one of your ears seem better than the other?
12. When was your last hearing test?
13. List any physical problems which might affect your reading or which the teacher should be aware of in case of emergency.
    (This information is confidential)

Appendix E

Name_____ Team_____ Section_____ Reading Improvement 1601

READING AUTOBIOGRAPHY

Write a story of your life as it has related to reading. You might include such facts as when you started to read, what you like and dislike about reading, what other members of your family like to read, when where, and how much reading you do, your reading strengths and habits, and any previous reading instruction. If you feel that you have a reading problem which needs special attention, please tell about it. Tell anything else that you would like your teacher to be aware of. Any information will be treated confidentially.